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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/853,134	05/09/2001	Frank Victor Kowalski	FVK01US	7257
7590	01/10/2005		EXAMINER	
Steven J Shattil 4980 Meredith Way #201 Boulder, CO 80303			LI, SHI K	
			ART UNIT	PAPER NUMBER
			2633	

DATE MAILED: 01/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/853,134

Applicant(s)

KOWALSKI, FRANK VICTOR

Examiner

Shi K. Li

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 May 2001 and 07 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9 May 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Drawings

1. FIG. 2, FIG. 3, FIG. 4 and FIG. 6 are objected to under 37 CFR 1.84(o) because there are no descriptive legends for the boxes. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claim 5 is objected to because of the following informalities: "the at least one repetitive waveforms" in line one should read "the at least one repetitive waveform". Appropriate correction is required.

3. Claim 19 is objected to because of the following informalities: "the repetitive waveform" in line 3 should read "the repetitive waveforms". Appropriate correction is required.

4. Claim 37 is objected to because of the following informalities: "the repetitive waveform" in line 2 should read "the repetitive waveforms". Appropriate correction is required.

5. Claim 38 is objected to because of the following informalities: "the repetitive waveform" in line 2 should read "the repetitive waveforms". Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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8. Claim 1 recites the limitation "the time-domain portions" in lines 10-11 of the claim.

There is insufficient antecedent basis for this limitation in the claim.

9. Claim 1 recites the limitation "the repetitive waveforms" in line 13 of the claim. There is insufficient antecedent basis for this limitation in the claim.

10. Claim 4 recites the limitation " the repetitive waveforms" in lines 1-2 of the claim. There is insufficient antecedent basis for this limitation in the claim.

11. Claim 6 recites the limitation " the repetitive waveforms" in line 1 of the claim. There is insufficient antecedent basis for this limitation in the claim.

12. Claim 7 recites the limitation "each repetitive waveform" in line 1 of the claim. It is unclear whether repetitive waveform refers to "the at least one repetitive waveform" or it is another repetitive waveform other than the at least one repetitive waveform recited in claim 1.

13. Claim 10 recites the limitation " the waveform period" in lines 1-2 of the claim. There is insufficient antecedent basis for this limitation in the claim.

14. Claims 15-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

15. Claim 19 recites the limitation "the combining step" in line 1 of the claim. There is insufficient antecedent basis for this limitation in the claim.

16. Claim 20 recites the limitation "the combining step" in line 1 of the claim. There is insufficient antecedent basis for this limitation in the claim.

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17. Claims 21-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

18. Claim 21 recites the limitation "the waveforms" in line 6 and in line 7 of the claim.

There is insufficient antecedent basis for this limitation in the claim.

19. Claims 28-34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

20. Claim 28 recites the limitation "the repetitive waveform" in line 6 of the claim. There is insufficient antecedent basis for this limitation in the claim.

21. Claims 35-41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

22. Claim 35 recites the limitation "the noise signals" in line 10 of the claim. There is insufficient antecedent basis for this limitation in the claim.

23. Claim 42 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

24. Claim 42 recites the limitation "the repetitive waveforms" in lines 6-7 and line 12 of the claim. There is insufficient antecedent basis for this limitation in the claim.

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25. Claims 43-45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

26. Claim 43 recites the limitation "the received waveforms" in line 8 of the claim. There is insufficient antecedent basis for this limitation in the claim.

27. Claim 43 recites the limitation "the repetitive waveforms" in line 8 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Double Patenting

28. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

29. Applicant is advised that should claim 40 be found allowable, claim 41 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing,

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despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 102

30. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

31. Claims 1-13, 15-17 and 19-44 are rejected under 35 U.S.C. 102(e) as being anticipated by Roberts et al. (U.S. Patent 6,313,932 B1).

Regarding claims 1, 35 and 42-43, Roberts et al. discloses in FIG. 7 an optical transmission system. FIG. 1 teaches a receiver comprising a coupler for receiving an optical signal and splitting it into two parts along two arms 82 and 83, a delay for delaying signal along one arm for a predetermined time period with respect to signal along the other arm, a coupler 68 for combining signals from the two arms.

Regarding claim 15, Roberts et al. teaches in col. 10, lines 5-10 different delay period.

Regarding claim 2, FIG. 7 suggests a waveguide between transmitter and receiver.

Regarding claim 3, Roberts et al. teaches in FIG. 1, through FIG. 5 to use WDM technique for generating a plurality of repetitive waveforms.

Regarding claim 4, Roberts et al. teaches in col. 10, lines 5-10 different delay period.

Regarding claim 5, Roberts et al. teaches in FIG. 2 continuous spectrum and a comb of spectrum lines.

Regarding claim 6, transmission system inherently has noise.

Regarding claim 7, Roberts et al. teaches in FIG. 2(D) a plurality of information signals.

Regarding claim 8, Roberts et al. teaches in FIG. 6A phase modulators 68.

Regarding claims 9 and 16, Roberts et al. teaches in FIG. 7 an interferometry step where one portion is delayed and combined with another portion.

Regarding claim 10, Roberts et al. teaches in col. 11, lines 5-39 that the receiver receives signal that has been delayed with di.

Regarding claims 11-12, 19-20 and 37-38, Roberts et al. teaches in FIG. 8 to provide various delay in the receiver. When the delay matches that of the transmitter, the combining step combines consecutive portions. When the delay does not match that of the transmitter, the combining step combines non-consecutive portions.

Regarding claims 13 and 39-41, Roberts et al. teaches in FIG. 7 a Mach-Zehnder interferometer structure.

Regarding claims 17 and 36, Roberts et al. teaches in FIG. 4 an array of receiving elements.

Regarding claims 21, 28 and 44, Roberts et al. teaches in FIG. 7 transmitter with modulator 4 and delay element 67.

Regarding claims 22 and 29, Roberts et al. teaches in FIG. 6A phase modulators 68.

Regarding claims 23-24 and 30, transmission system inherently has noise. Roberts et al. teaches in FIG. 2(B) frequency-offset between components.

Regarding claims 25 and 31, Roberts et al. teaches in FIG. 1 and FIG. 2 to generate a plurality of channels of similar bandwidth.

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Regarding claims 26 and 32, Roberts et al. teaches in col. 10, lines 5-10 different delay period.

Regarding claims 27 and 34, Roberts et al. teaches in FIG. 2 continuous spectrum and a comb of spectrum lines.

Regarding claim 33, Roberts et al. teaches in FIG. 2(B) frequency-offset between components.

Claim Rejections - 35 USC § 103

32. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

33. Claims 14, 18 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts et al. (U.S. Patent 6,313,932 B1) in view of Smith (U.S. Patent 4,959,826).

Roberts et al. has been discussed above in regard to claims 1-13, 15-17 and 19-44. The difference between Roberts et al. and the claimed invention is that Roberts et al. does not teach a frequency shifter. Smith suggests in FIG. 1 to use a frequency shifter to send a carrier so that the carrier does not interfere with the signal. One of ordinary skill in the art would have been motivated to combine the teaching of Smith with the optical transmission system of Roberts et al. to frequency shift the delayed copy of the signal so that the delayed copy does not interfere with the undelayed copy. To recover the delayed copy, a frequency shift in the opposite direction is needed as taught by Smith in col. 6, lines 59-62. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a frequency shifter in the

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transmitter for shifting the delayed copy of the signal and include a frequency shifter in the receiver for shifting the undelayed copy in the opposite direction for uncovering the original signal, as taught by Smith, because this approach minimizes interference between the repetitive signals.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shi K. Li whose telephone number is 571 272-3031. The examiner can normally be reached on Monday-Friday (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

skl
30 December 2004


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